

IN THE CLAIMS:

Amend claims 1-16 and add the following new claims 17-20 as shown in the following listing of claims, which replaces all previous listings and versions of claims.

1. (currently amended) An optical switch comprising:

~~plural optical fibers at least first, second, and third optical fibers disposed generally parallel to each other and spaced arranged in parallel with each other at non-equal intervals and having tip portions disposed approximately along a straight line;~~

~~first guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding fixing mirror means located in front of said plural optical fibers and able to guide a beam of light emitted from a the first optical fiber to a the second optical fiber along a first optical path disposed between the tip portion of the first optical fiber and the tip portion of the second optical fiber;~~
and

~~second guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for movable mirror means able to be advanced and retreated in front of said plural optical fibers, and guiding~~

the beam emitted from said the first optical fiber to a the third optical fiber along a second optical path disposed between the tip portion of the first optical fiber and the tip portion of the third optical fiber so that a length of the second optical path is substantially equal to a length of the first optical path. fiber, and able to form an optical path of substantially the same length as the optical path able to be constructed by said fixing mirror means from said first optical fiber to said second optical fiber when the movable mirror means is advanced in front of said optical fibers.

2. (currently amended) The An optical switch according to claim 1; wherein the plurality of optical fibers further comprises at least a fourth optical fiber having a tip portion disposed approximately along a straight line; and further comprising third guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding claim 1, wherein the optical switch further comprises another fixing mirror means located in front of said plural optical fibers and able to guide the beam emitted from a the fourth optical fiber to said the third optical fiber, and fourth guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding another movable mirror means able to be advanced and retreated in front of said plural optical fibers, and able to guide the

beam emitted from said the fourth optical fiber to said the second optical fiber, when this another movable mirror means is advanced in front of said optical fibers.

3. (currently amended) The An optical switch according to claim 2; wherein the third guiding means guides the beam emitted from the fourth optical fiber to the third optical fiber along a third optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the third optical fiber, and the fourth guiding means guides the beam emitted from the fourth optical fiber to the second optical fiber along a fourth optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the second optical fiber; and wherein a length of at least one of the third optical path and the fourth optical path is substantially equal to a the length of each of the first and second optical paths. claim 2, wherein one or both of the optical path constructed by said another fixing mirror means from said fourth optical fiber to said third optical fiber, and the optical path constructed by said another movable mirror means from said fourth optical fiber to said second optical fiber substantially have the same lengths as the optical path constructed by said fixing mirror means from said first optical fiber to said second optical fiber and the optical path constructed by said movable mirror means from said first optical fiber to said third optical fiber.

4. (currently amended) ~~The~~ An optical switch according to claim 3, wherein claim 3; wherein the optical switch comprises an ~~is used in~~ the optical communication component of an add-drop system, and said system where the first optical fiber is set to IN, and one of said the second optical fiber and said the third optical fiber is set to OUT, and OUT, the other of the second optical fiber and the third optical fiber is set to DROP, and said the fourth optical fiber is set to ADD.

5. (currently amended) ~~The~~ An optical switch according to claim 4, wherein claim 4; wherein only one of the third optical path when the third optical fiber is set to DROP and the fourth optical path when the second optical fiber is set to DROP has a length which is different from the other of the optical paths. ~~only the optical path from said fourth optical fiber set to ADD to said second or third optical fiber set to DROP is different in length from the other optical paths.~~

6. (currently amended) ~~The~~ An optical switch according to claim 4, wherein claim 4; wherein the third optical path when the third optical fiber is set to DROP or the fourth optical path when the second optical fiber is set to DROP is interrupted. ~~the optical path from said fourth~~

~~optical fiber set to ADD to said second or third optical fiber set to DROP is interrupted on the way.~~

7. (currently amended) ~~The An optical switch according to claim 3; wherein the first and third guiding means comprise a total of at least four mirrors; and wherein the second and fourth guiding means comprise a total of at least four mirrors mounted for simultaneously undergoing movement to a position in front of the tip portions of the optical fibers. claim 3, wherein said fixing mirror means and said another fixing mirror means include at least four fixing mirrors in total, and said movable mirror means and said another movable mirror means include at least four movable mirrors in total simultaneously movable so as to be advanced or retreated in front of said plural optical fibers.~~

8. (currently amended) ~~The An optical switch according to claim 3; wherein the first and third guiding means comprise a total of at least four mirrors; and wherein the second and fourth guiding means comprise a total of two mirrors mounted for simultaneously undergoing movement to a position in front of the tip portions of the optical fibers to cooperate with at least one of the mirrors of the first and third guiding means for guiding the beam emitted from the first optical fiber and the beam emitted from the fourth~~

optical fiber along the second optical path and the fourth optical path, respectively. claim 3, wherein said fixing mirror means and said another fixing mirror means include at least four fixing mirrors in total, and said movable mirror means and said another movable mirror means include two movable mirrors in total simultaneously movable so as to be advanced or retreated in front of said plural optical fibers and able to construct said optical path in cooperation with one of said fixing mirrors.

9. (currently amended) The An optical switch according to claim 7, wherein claim 7; wherein each of mirror of the first, second, third and fourth guiding means reflects said movable mirror and said fixing mirror can reflect only one beam.

10. (currently amended) The An optical switch according to claim 8, wherein claim 8; wherein each of mirror of the first, second, third and fourth guiding means reflects said movable mirror and said fixing mirror can reflect only one beam.

11. (currently amended) The An optical switch according to claim 9; wherein each mirror of the second and fourth guiding means has a diameter which is claim 9, wherein said movable mirrors and said fixing mirrors are arranged by

~~the same number as the number of portions ought to reflect the beam and required to construct said optical paths, and said movable mirror is formed at a size three times or less than a the beam diameter of the beam emitted from the first optical fiber and a diameter of the beam emitted from the fourth optical fiber.~~

12. (currently amended) ~~The An~~ optical switch according to claim 10; wherein each mirror of the second and fourth guiding means has a diameter which is ~~claim 10~~, wherein said movable mirrors and said fixing mirrors are arranged by the same number as the number of portions ought to reflect the beam and required to construct said optical paths, and said movable mirror is formed at a size three times or less than a the beam diameter of the beam emitted from the first optical fiber and a diameter of the beam emitted from the fourth optical fiber.

13. (currently amended) ~~The An~~ optical switch according to ~~claim 1~~, wherein claim 1; wherein the first guiding means comprises a plurality of first mirrors disposed all of said mirrors are arranged at an angle of 45 degrees with respect to the ~~an~~ optical axis of said optical fiber. ~~the optical fibers; and wherein the second guiding means comprises a plurality of second mirrors disposed at an angle of 45~~

degrees with respect to the optical axis of the optical fibers
when the second mirrors are disposed at the position in front
of the tip portions of the optical fibers.

14. (currently amended) An The optical switch
according to claim 1, wherein claim 1; wherein each of the
first and second quiding means comprises a plurality of
mirrors; and further comprising a lens functional part
disposed between at least one of the optical fibers and the
mirrors for converging the said beam emitted from the at least
one of the optical fibers. propagated within said optical
fiber or changing this beam to parallel light is arranged
between said optical fiber and said mirrors.

15. (currently amended) An The optical switch
according to claim 1; wherein the second quiding means
comprises a plurality of mirrors; and further comprising
control means for controlling movement of the mirrors to
adjust the direction of the beam emitted from the first
optical fiber to the third optical fiber along the second
optical path. claim 1, wherein the light amount for coupling
the beam emitted from said optical fiber to another optical
fiber forming the optical path together with said optical
fiber can be adjusted by controlling the advancing amount and
the retreating amount of said movable mirror with respect to
the optical path.

16. (currently amended) The An optical switch device comprising: a plurality of optical switch devices according to claim 1 disposed relative to one another so that an optical axis of each of the optical fibers of the optical switch devices are disposed generally parallel to one another. in which plural optical switches according to claim 1 are arranged such that the optical axes are approximately parallel to each other on a face on which said optical fibers are arranged in parallel with each other.

17. (new) An optical switch comprising:

a main body;

at least first, second and third optical fibers mounted on the main body and disposed generally parallel to each other with tip portions of the optical fibers disposed approximately along a straight line;

first guiding means integrally mounted on the main body for intersecting a beam of light emitted from the first optical fiber and for guiding the beam to the second optical fiber along a first optical path having a preselected length;

and

second guiding means mounted on the main body for undergoing movement relative to the main body to intersect the beam emitted from the first optical fiber and guide the beam to the third optical fiber along a second optical path having substantially the preselected length.

18. (new) An optical switch according to claim 17; wherein each of the first and second guiding means comprises a plurality of mirrors.

19. (new) An optical switch according to claim 17; further comprising a plurality of grooves formed in the main body; and wherein each of the first, second, and third optical fibers is mounted in a respective one of the grooves.

20. (new) An optical switch according to claim 17; wherein each of the first, second, and third optical fibers has a front part having the tip portion; and wherein the front parts of the first, second, and third optical fibers are disposed generally parallel to one another.